

REMARKS

This response is prepared in response to the first Office action mailed on 2 September 2004 (Paper No. 08232004).

Consideration Of IDS Under 37 CFR §1.98

It should be noted that, in one of the three sheets of PTO-1449 attached to the first Office action (Paper No. 08232004), no indication was made as to the Examiner's consideration of the British patent reference cited in Applicant's *Information Disclosure Statement* filed on 28 June 2002, namely GB2 341 267 to Enarson *et al.*, issued on 8 March 2000. It is respectfully requested therefore, that the Examiner initial the GB2 341 267 reference listed in the PTO-1449 so as to indicate his consideration of that reference, and return a copy of that initialed PTO-1449 to Applicant with the next Office correspondence.

Status of the Claims

Claims 1 through 17 are pending in the application. By this Amendment, claims 2, 8, 10 and 12 through 14 are amended. Thus, claims 1 through 17 remain pending in this application.

Objection of Claims 8, 10 and 12-14

Claims 8, 10 and 12 through 14 were objected to because of the informalities

pointed out by the Examiner. The foregoing amendments to claims 8, 10 and 12 through 14 remove the bases for the objections. Additionally, dependent claim 2 is amended to remove a possible question of antecedent basis.

Rejection of Claims 1-6 Under 35 U.S.C. §102(b)

Claims 1 through 6 were rejected under 35 U.S.C. §102(b) as possibly anticipated by Enarson *et al.*, U.S. Patent No. 6,078,455. Applicant respectfully traverses this rejection for the following reasons.

Enarson *et al.* '455 contemplates optimization of operational performance of hard disk drives by establishing predefined contiguous operational temperature ranges, and measuring temperature, either on a periodic basis or at selected operational stages such during idle periods or at the beginning of a seek operation. The particular one of the operational temperature ranges that includes the measured temperature is identified, and a parameter set corresponding to the identified operational temperature range is then loaded.

Rejected claims 1 through 6 and 8 define, *inter alia*,

“making a determination that an excessive temperature exists when the updated temperature information falls outside of a *critical temperature range* ...”¹

In an effort to finesse the absence of this feature of Applicant’s claims from the teachings of Enarson *et al.* ‘455, the Examiner summarily states that,

¹ Claim 1, lines 5 and 6.

“the ambient temperature range is viewed by the Examiner as the *critical temperature range* ...”²

There is no evidence present in the record of this Application to justify the Examiner’s summary statement.

In contradistinction to the Examiner’s summary statement however, Enarson *et al.* ‘455 expressly teaches that its:

“control processor 142 checks the temperature of the disc drive 100 by way of the temperature sensor 160 and the A/D 162 (FIG. 2) to determine whether the disc drive 100 is operating in the cold, ambient or hot temperature ranges, as indicated by block 204.”³

Table 1 of Enarson *et al.* ‘455, among other passages, teaches that the “cold range” is “ $T < 15^\circ$ ”, the “ambient range” is “ $15^\circ \leq T \leq 45^\circ$ ” and that the “cold range” is “ $T < 45^\circ$ ”.⁴ Applicant however, teaches that a *critical temperature range*⁵ and defines that *critical temperature range* by:

“ T_{\min} corresponds to a minimum critical temperature at which the parameter values set in the burn-in process need to be changed. T_{\max} corresponds to a maximum critical temperature at which the parameter values set in the burn-in process need to be adjusted.”⁶

² Paper No. 08232004, paragraph 5, page 3.

³ Enarson *et al.* ‘455, column 7, lines 59-63.

⁴ Enarson *et al.* ‘455, column 5, lines 55-66 and column 6, lines 1-8..

⁵ Applicant’s original specification, page 4, lines 10 and 15.

⁶ Applicant’s original specification, page 9, lines 3 through 5.

T_{\min} and T_{\max} “are obtained through experimentation.”⁷ Anticipation is a question of fact, reviewed under the substantial evidence standard.⁸ Applicant’s teaching of a *critical temperature range* is wholly absent from the Examiner’s reading of Enarson, *et al.* ‘455;¹⁰ in point of fact, the difference between claim 1 and Enarson, *et al.* ‘455 may be better seen in the teaching of Enarson, *et al.* ‘455 of a *predefined operational temperature range*¹¹ and *operational temperature range*.¹² These phrases are completely consistent with the teachings of Enarson, *et al.* ‘455 that:

“[c]old is defined as a temperature of less than 15 degrees Celsius (°C.), ambient is defines as a temperature between (and including) 15°C. and 45°C. and hot is defined as a temperature above 45°C. Other temperature ranges could readily be established.”¹³

In short, Enarson, *et al.* ‘455 teaches (i) that “temperature ranges … [are] established”¹⁴

⁷ Applicant’s original specification, page 9, line 10.

⁸ Enarson, *et al.* ‘455, column 5, lines 27-32.

⁹ *Eolas Technologies Inc., et al. v. Microsoft Corporation*, Fed.Cir., Appeal No. 04-1234, 2 March 2005.

¹⁰ In fact, Enarson, *et al.* ‘455 does not use either the phrase *critical temperature range* or the phrase *critical range* or the phrase *critical temperature*. Unanswered in the Examiner’s reasoning is how Enarson, *et al.* ‘455 can be said to teach Applicant’s *critical temperature range* when Enarson, *et al.* ‘455 does not use this term?

¹¹ Enarson, *et al.* ‘455, column 2, lines 56 and 57.

¹² Enarson, *et al.* ‘455, column 2, lines 60 and 63-64; column 9, lines 26-27, 32, and 34-35.

¹³ Enarson, *et al.* ‘455, column 5, lines 27-31.

¹⁴ The temperature ranges which are established by Enarson, *et al.* ‘455 may however, be predefined over a scale other than the 15°C to 45°C “ambient temperature range”; see Enarson, *et al.* ‘455 at column 5, lines 30-31 and column 7, lines 26-29.

and that (ii) those temperature ranges which have been established are associated with corresponding sets of “the parameter sets … [which have been] optimized during disc drive manufacture”¹⁵ and those “parameter sets” are stored in flash memory 146.¹⁶ Regardless of how Enarson, *et al.* ‘455 practices this process for optimizing “the parameter sets”, Enarson, *et al.* ‘455 teaches nothing at all about optimizing the “predefined operational temperature ranges.” Consequently, under the all elements rule, Enarson *et al.* ‘455 fails to make a *prima facie* showing of anticipation under 35 U.S.C. §102(b).

Second, in addressing Applicant’s *determination* of the existence of *an excessive temperature* which is defined by claim 1, as:

“making a determination that an excessive temperature exists when the updated temperature information falls outside of a *critical temperature range* … .”¹⁷

the Examiner makes a conclusory statement that,

“the ambient temperature range is viewed by the Examiner as the *critical temperature range* … .”¹⁸

Ignoring *arguendo* that there is no evidence present in the record of this Application to justify the Examiner’s statement, case law supports the right of the Applicant to be his

¹⁵ Enarson, *et al.* ‘455, column 7, lines 18-20.

¹⁶ Enarson, *et al.* ‘455, column 7, lines 36.

¹⁷ Claim 1, lines 5 and 6.

¹⁸ Paper No. 08232004, paragraph 5, page 3.

own lexicographer, but there is no authority in U.S. practice that approves of a practice of substituting the nomenclature of the Applicant's claims for the teachings of the prior art.

Under U.S. claim interpretation practice, "claim terms are [accorded] their customary meaning in the art at the time of the invention."¹⁹ Here, Applicant's phrase *critical temperature range* has no customary meaning in the hard disk drive art. The sole reference in the rotating disk memory art which uses this phrase is the *Magneto-optical Recording Medium Having A Transfer Control Layer* to Murakami *et al*, U.S. Patent No. 6.791.908 issued on the 14th of September 2004, and its parent U.S. Patent No. 6.504.797, issued on the 7th of January 2003. This solitary reference uses the term *critical temperature range* to define the temperature state where,

"magnetization of the recording layer and magnetization of the transfer control layer are opposite in direction [*sic*, from ?] each other but coincide in magnitude."²⁰

That definition first appeared in the art after the filing of this application, and pertains to a "magnetic-optical recording medium", rather than to a hard disk drive; consequently, its use is not an art recognized term. Applicant's *critical temperature range* is something other than a *temperature range*, and is also something different than a *predefined*

¹⁹ *Technologies Inc., et al. v. Microsoft Corporation*, Fed. Cir. Appeal No. 04-1234, page 17, decided 2 March 2005.

²⁰ *Magneto-optical Recording Medium Having A Transfer Control Layer* to Murakami *et al*, U.S. Patent No. 6.791.908 issued on the 14th of September 2004, and its parent U.S. Patent No. 6.504.797, issued on the 7th of January 2003, column 25, lines 10-14.

temperature range. A “predefined operational temperature”²¹ range is, according to the teachings of the art, simply a fixed temperature range which is applied to all hard disks, and can not be said to be determined during burn-in. Consequently, Applicant’s definition of this phrase is determinative in the art.

Third, claim 1 defines, among other features,

“changing values of a plurality of write and read parameters ... affected by *thermal variation*, to compensate for changes in the performance of the hard disk drive due to said excessive temperature, *in dependence upon relationships between said write and read parameters and said thermal variation.*”²²

Applicant’s specification teaches that,

“[t]he parameters stored with their initial values in memory 208 are the optimum parameters that are *determined during the burn-in process*, which is one of the processes performed during the manufacture of hard disk drive 10.”²³

These features are absent from Enarson *et al.* ‘455, which relies upon “parameter sets corresponding to the identified [predefined] operational temperature range[-s].”²⁴ To anticipate under 35 U.S.C. §102(b), “a single reference must teach each and every limitation of the claims invention.”²⁵ Absent teaching of this relation between the

²¹ Enarson *et al.* ‘455, at column 2, lines 56-57.

²² Applicant’s original specification, page 8, lines 19-21.

²³ Claim 1, lines 8-11.

²⁴ Enarson *et al.* ‘455, column 2, lines 57-58.

²⁵ *Technologies Inc., et al. v. Microsoft Corporation*, Fed. Cir. Appeal No. 04-1234, @ page 14, decided 2 March 2005.

establishment of Applicant's *excessive temperature* relative to Applicant's *critical temperature range* in combination with Applicant's "changing values ... in dependence upon relationships between ... parameters and said *thermal variation*", there is no basis for maintaining a rejection under 35 U.S.C. §102(b). No dependency between a *critical temperature range* established at burn-in and the parameters affected by the *thermal variation*, is either taught or suggested by Enarson *et al* '455. Withdrawal of this rejection is therefore, is respectfully requested.

Rejection of Claims 9-11, 13-15 and 17 Under 35 U.S.C. §103(a)

Claims 9 through 11, 13 through 15 and 17 were rejected under 35 U.S.C. §103(a) as alleged rendered obvious, and unpatentable over Enarson *et al.* '455. Applicant respectfully traverses this rejection for the following reasons.

First, in support of this rejection, the Examiner argues that Enarson *et al.* '455 teaches, among other features,

"detecting an excessive temperature by comparing the updated information and a critical temperature range (col. 8, lines 21-24)"²⁶

A thorough reading of Enarson *et al.* '455 fails to reveal this teaching; in point of fact, column 8, lines 21 through 24, refers to the block diagram shown in Figure 3 of Enarson *et al.* '455, and states:

²⁶ Paper No. 08232004, page 5.

“Once the delay is completed, the control processor 142 checks the temperature of the disc drive 100, as shown by block 214, and determines whether a change in temperature range has occurred, as shown by decision block 216.”

Nowhere in either this passage cited by the Examiner, nor in the remainder of this reference does Enarson *et al.* ‘455 provide any teaching of either Applicant’s *detecting an excessive temperature*, or Applicant’s *comparing the updated temperature information*, or Applicant’s *comparing the updated temperature information and a critical temperature range*. Enarson *et al.* ‘455 has a relatively short specification, but these features of Applicant’s claims 9 through 11, 13 through 15 and 17 are absent. Clarification is respectfully requested.

Second, the rejected claims define, *inter alia*,

“apparatus for determining parameters of a hard disk drive ... comprising: a controller storing ... updated temperature information representing the ambient temperature detected by the temperature sensor ..., detecting an excessive temperature by comparing the updated temperature information and a critical temperature range ...”²⁷

In contradistinction, Enarson *et al.* ‘455 expressly teaches that its:

“control processor 142 checks the temperature of the disc drive 100 by way of the temperature sensor 160 and the A/D 162 (FIG. 2) to determine whether the disc drive 100 is operating in the cold, ambient or hot temperature ranges, as indicated by block 204.”²⁸

Table 1 of Enarson *et al.* ‘455, among other passages, teaches that the “cold range” is “T

²⁷ Claim 9, lines 1, 2 and 8 through 11.

²⁸ Enarson *et al.* ‘455, column 7, lines 59-63.

< 15°”, the “ambient range” is “15° ≤ T ≤ 45°” and that the “cold range” is “T < 45°”.²⁹

Applicant however, teaches that a *critical temperature range*³⁰ that is defined by:

“T_{min} corresponds to a minimum critical temperature at which the parameter values set in the burn-in process need to be changed. T_{max} corresponds to a maximum critical temperature at which the parameter values set in the burn-in process need to be adjusted.”³¹

T_{min} and T_{max} “are obtained through³² experimentation.” These teachings are wholly absent from the Examiner’s reading of Enarson *et al.* ‘455.

These differences must be considered under 35 U.S.C. §103(a) in gauging obviousness *vel non*, because Applicant’s “apparatus” advantageously enables the *critical temperature range* for each hard disk drive to be established, as a function of “those parameters ... which are affected by thermal variation”³³, rather than a fixed and unalterable temperature range as taught by the prior art, thereby customizing the optimization of each individual hard disk drive at the time of burn-in. Neither this improvement nor the individualization of optimization is available with the prior art. Consequently, claims 9 through 11, 13 through 15 and 17 are patentably distinguishable,

²⁹ Enarson *et al.* ‘455, column 5, lines 55-66 and column 6, lines 1-8..

³⁰ Applicant’s original specification, page 4, lines 10 and 15.

³¹ Applicant’s original specification, page 9, lines 3 through 5.

³² Applicant’s original specification, page 9, line 10.

³³ Applicant’s original specification, page 9, lines 16 through 18.

and allowable under 35 U.S.C. §102(b).

Nakazato Japanese laid open JP 02187972

Paper No. 08232004 cites and discusses, but fails to apply Japanese laid open JP 02187972 to Nakazato. The fact that this reference may teaching storage of “a latest detected temperature value” is irrelevant to the issues before the Commissioner in this application.

Objection of Claims 7, 12 and 16

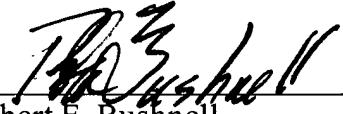
Claims 7, 12 and 16 were objected to for dependency upon a rejected claim, but the Examiner stated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Fee Incurred

A petition for a three month extension of time and an Applicant's check in the amount of \$1,020.00 drawn to the order of Commissioner accompanies this response. Should the petition become lost, the Commissioner is requested to treat this paragraph as a petition for an extension of time, and should the check become lost, be deficient in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

In view of the above, it is submitted that the claims of this application are in condition for allowance, and early issuance thereof is solicited. Should any questions remain unresolved, the Examiner is requested to telephone Applicant's attorney.

Respectfully submitted,



Robert E. Bushnell,
Attorney for the Applicant
Registration No.: 27,774

1522 "K" Street N.W., Suite 300
Washington, D.C. 20005
(202) 408-9040

Folio: P56603
Date: 3/2/05
I.D.: REB/kf